Claims

1. A method in receiving a multi-carrier transmission, wherein the multi-carrier transmission comprises various symbols, each symbol comprising a plurality of carriers, the method comprising the steps of:

accessing at least two symbols which are adapted to establish a correspondence pattern for pilot carriers in a matrix of the at least two symbols,

correlating carriers of the first symbol with the corresponding carriers of the second symbol within the matrix, and

determining a correlation maximum indicating a pilot carrier position.

2. A method according to claim 1, wherein the accessed symbols are selected so that the correspondence pattern is adapted to be established between pilot carriers of the symbols for certain carrier positions within the matrix of the symbols.

3. A method according to claim 1, wherein the step of accessing comprises:

receiving the first symbol of the transmission,

delaying the first symbol in relation to the second symbol, wherein the symbols are adapted to establish the correspondence pattern for pilot carriers in the matrix of the two symbols.

4. A method according to any one of the preceding claims, wherein the accessed symbols comprise currently received symbol and certain predetermined another symbol following the currently received symbol.

5. A method according to claim 4, wherein the accessed symbols comprise currently received symbol and certain predetermined another symbol following the currently received symbol so that the correspondence pattern is adapted to be established between pilot carriers of the symbols for certain carrier positions within the matrix of the symbols.

6. A method according to any one of the preceding claims, wherein the certain predetermined another symbol comprises a fourth symbol following the currently received symbol.

7. A method according to claim 1, wherein the step of correlating comprises:

performing a first correlation between first possible pilot carrier positions of the first symbol and first possible pilot carrier positions of the second symbol,

performing a second correlation between second possible pilot carrier positions of the first symbol and second possible pilot carrier positions of the second symbol,

performing a third correlation between third possible pilot carrier positions of the first symbol and third possible pilot carrier positions of the second symbol,

performing a fourth correlation between fourth possible pilot carrier positions of the first symbol and fourth possible pilot carrier positions of the second symbol,

detecting the correlation maximum magnitude from the first, second, third, and fourth correlations for indicating the current scattered pilot raster position.

8. A method according to claim 7, wherein the first correlation is calculated based on the following formulae:

$C_1(n) = \left| \sum_{p=0}^{p_{max}} S(n,12p+12) \cdot S^*(n-4,12p+12) \right|$, wherein S(n,c) denotes c-th subcarrier of the current symbol and p_{max} depends on the used mode of the transmission.

9. A method according to claim 7, wherein the second correlation is calculated based on the following formulae:

$C_2(n) = \left| \sum_{p=0}^{p_{max}} S(n,12p+3) \cdot S^*(n-4,12p+3) \right|$, wherein S(n,c) denotes c-th subcarrier of the current symbol and p_{max} depends on the used mode of the transmission.

10. A method according to claim 7, wherein the third correlation is calculated based on the following formulae:

$C_3(n) = \left| \sum_{p=0}^{p_{max}} S(n,12p+6) \cdot S^*(n-4,12p+6) \right|$, wherein S(n,c) denotes c-th subcarrier of the current symbol and p_{max} depends on the used mode of the transmission.

11. A method according to claim 7, wherein the fourth correlation is calculated based on the following formulae:

$C_4(n)=\left|\sum_{p=0}^{p_{max}} S(n,12p+9)\cdot S^*(n-4,12p+9)\right|$, wherein S(n,c) denotes c-th subcarrier of the current symbol and p_{max} depends on the used mode of the transmission.

12. A method according to claim 7, wherein the first correlation is calculated based on the following formulae:

$C_1(n)=\left|\sum_{p=0}^{p_{max}} S(n,12p)\cdot S^*(n-4,12p)\right|$, wherein S(n,c) denotes c-th subcarrier of the current symbol and p_{max} depends on the used mode of the transmission.

13. A method according to claim 7, wherein in the step of detecting the correlation maximum magnitude is based on the following formulae:

$C_{max}(n)=\max(C_p(n)); p\in\{1,2,3,4\}$, wherein $C_p(n)$ denotes the first, second, third, and fourth correlations, p is adapted to determine pilot carrier positions for identifying a certain symbol, and

the current scattered pilot raster position (SPRP) is found based on the following formulae:

$SPRP(n)=\arg\max_p(C_p(n)); p\in\{1,2,3,4\}$, wherein the $C_p(n)$ denotes the first, second, third, and fourth correlations, p is adapted to determine pilot carrier positions for identifying a certain symbol.

14. A method according to any one of the preceding claims, wherein the multicarrier transmission comprises OFDM transmission using time slicing, the symbol comprises OFDM symbol and the plurality of carriers comprise data carriers and scattered pilot carriers.

15. A method according to any one of the preceding claims, wherein the multicarrier transmission comprises time slicing based power saving based on bursts, and a synchronization of the receiver into the bursts is adapted to be based on the indicated pilot position for finding index of the received symbol.

16. A method according to any one of the preceding claims, wherein the multicarrier transmission comprises DVB transmission using time slicing based on bursts, and synchronization into the bursts is adapted to be based on the indicated pilot position for finding an indication indicating the OFDM symbol.

17. A system for receiving a multi-carrier transmission, wherein the multi-carrier transmission comprises various symbols, each symbol comprising a plurality of carriers, the system comprising:

means for accessing at least two symbols which are adapted to establish a correspondence pattern for pilot carriers in a matrix of the at least two symbols,

means for correlating carriers of the first symbol to the corresponding carriers of the second symbol within the matrix for determining a correlation maximum for indicating a pilot carrier position.

18. A receiver for receiving a multi-carrier transmission, wherein the multi-carrier transmission comprises various symbols, each symbol comprising a plurality of carriers, the receiver comprising:

a Fast Fourier Transform (FFT) means for FFT transformation of the received transmission for obtaining at least two symbols of the transmission,

a delay means for delaying an obtained first symbol to obtain another symbol, wherein a matrix, comprising the symbols and their respective carriers, is adapted to establish a correspondence pattern for pilot carriers of the first symbol with pilot carriers of the another symbol within the matrix,

a correlator means for correlating carriers of the symbol with the corresponding carriers of the another symbol within the matrix,

accumulator means for accumulating correlation results obtained from the correlator,

means for detecting a correlation maximum from the correlation results for indicating a pilot carrier position.

19. A receiver according to claim 18, wherein computational resources for performing the operations of at least the correlator means and the means for detecting comprises the same computational resources which are adapted to perform a post-FFT acquisition in the receiver.

20. A receiver according to claim 18, wherein a buffer means of the receiver is adapted to contain the delay means, the correlator means, the accumulator means, and the means for detecting the correlation maximum.